

# **Salt River Fire Department Operating Guidelines**

## **Brush/Wildland Fires**

**April 2000**

**202.11**

**1 of 9**



This plan is intended to serve as an operational guide when dry vegetation fires are encountered (seasonal). All normal standard operating procedures of the Salt River Fire Department are in effect for WILDLAND firefighting except as amended or superseded by this plan.

### **DAILY FORECAST**

The On-Duty Captain will contact the State Division of Forestry to determine the local fire conditions and the local expected weather condition on a daily basis during the brush fire season.

When fire conditions are rated as high, very high, or extreme or when high winds are forecast,

The On-Duty Captain will relay this information to all stations via Phone. Also, during the preceding conditions, Alarm will dispatch A STILL brush assignments as they are deemed necessary from information received. A STILL brush assignment will consist of ONE engine and a brush truck.

Brush Trucks may be constant staffed during brush fire season as conditions dictate.

### **DECLARATION OF WILDLAND FIRE**

Occasionally, the Department will respond to a brush fire that consumes multiple acres, often in areas isolated from ground access. These fires typically demand a significant command and support staff to manage and will often require resources from other Fire Departments and Government agencies.

Command will be responsible for requesting all needed resources. Any fire exceeding 50 acres will be declared as a "Wildland Fire." Once a fire reaches this benchmark, command will advise Alarm that the mode of operations has reached a "Wildland Fire" status.

The following additional resources will be included for the incident:

#### **FIRST ALARM BRUSH**

- Staff and Command Officer Response
- Canteen Unit
- Weather Reports

# Salt River Fire Department Operating Guidelines

## Brush/Wildland Fires

April 2000

202.11

2 of 9



The Incident Commander will be responsible for developing and staffing the sections necessary to support incident needs. Each Section Officer will be responsible for developing an effective organization within each section to support Fire Operations.

### KEY FACTORS

The following factors have a critical effect on the burning characteristics of a wildland fire. Command must maintain an awareness of these conditions and be prepared to react quickly, pessimistically and well ahead of the fire. The factors are: WEATHER, FUEL, and TOPOGRAPHY.

### WEATHER

Command must be aware of constantly changing weather conditions. During a normal day, local winds will change 180 degrees near midday and usually become gusty during the afternoon.

Morning winds are normally East to West and afternoon winds are usually West to East. Fire spread will usually slow down in the evening AS HUMIDITY INCREASES (25%) and increase during the midmorning hours AS THE HUMIDITY DECREASES (15%).

Command should always be aware of the fire conditions, weather conditions and time of day.

Remember that a large WILDLAND fire can create dangerous convection currents that cause erratic fire behavior and spot fires far in advance of the fire head. Heavy winds also produce similar results.

Hot and dry conditions produce extremely rapid fire spread. A slight decrease in relative humidity will cause a significant increase in fire intensity. During extreme days surface-wetted fuel will dry in a few minutes.

### FUEL

Most of the fuel in the Phoenix area is relatively light and burns very rapidly. It is not expected to burn in any area for more than a few minutes and may not require extensive overhaul. Once an area has been burned, usually only the heavier fuel (tree stumps, etc.) need to be MOPPED UP.

# **Salt River Fire Department Operating Guidelines**

## **Brush/Wildland Fires**

**April 2000**

**202.11**

**3 of 9**



MOP UP is necessary to prevent embers from being blown into new fuel.

### **TOPOGRAPHY**

Fire burns uphill much more rapidly than downhill. On an uphill slope, the fire will tend to crown over the top and start spot fires a considerable distance down the receding slope. A large free-burning fire will tend to create its own convection currents and spot fires may be started. Access is often the most serious problem with topography.

Companies at the beginning of the brush fire season should size-up areas with regard to fuel, topography and extent of exposure to structures. Particular attention should be paid to access roads and accessible areas where apparatus may travel. Natural fire breaks and potential exposure problems should be noted on the area maps provided for this purpose.

### **COMMAND**

On major incidents establish a Command Post and geographic sectors as soon as possible. The Command Post should be in a location that will be safe and not have to move if the fire changes direction.

Supporting elements should be able to setup at the Command Post. Select a site where a helicopter may land in close proximity to the Command Post. The Command Post will need a set of maps to plot progress, exposures and access. The units in the field, particularly geographic sectors, will have to report this information back to Command via radio or personal contact. On fires involving large areas, the brush maps should be used for this purpose.

### **TACTICS AND STRATEGY**

Brush fires often present a large area of rapidly spreading fire. The critical decision is often where to attack the fire to the best advantage.

The basic brush fire philosophy will be to aggressively stop the forward progress of fire whenever possible.

Protection of exposures is the primary goal when immediate control is not possible.

# Salt River Fire Department Operating Guidelines

## Brush/Wildland Fires

April 2000

202.11

4 of 9



A direct water attack is the fastest control evolution available to counteract wildfire spread.

Clearly, many situations will not support this possibility and Command must be prepared to readjust strategy which may make it necessary to develop a defensive strategy to protect exposures while allowing the fire to burn to a location better suited for control. In these cases, it may be best to use vehicle access to position apparatus to protect exposed structures and allow the main body of fire to pass by.

When water is in short supply, it is usually most effective when applied to burning material instead of wetting fuel in advance. Seriously exposed structures should be kept wet while exposed.

As fire spread becomes more critical, Command must be prepared to special call additional attack units or to request assistance by standardized alarm responses.

This determination must be made early.

On large open grass fires, Command must take advantage of natural fire barriers that will assist in control measures, such as: dry sandy washes, roads, trails, rock outcroppings, patch fuels, etc.

Command must quickly develop a fire-fighting plan. The following is a list of size-up considerations that greatly affect tactics and strategy.

1. Location of fire head or heads. The fast moving part of the fire.
2. Pertinent burning conditions--weather, time of day, etc.
3. Type of fuel--light, heavy fuel.
4. Exposures--improvements, buildings, crops, etc.
5. Size of fire and rate of speed.
6. Special hazards--hot spots, spot fires, developing heads.
7. Manpower needs.

# Salt River Fire Department Operating Guidelines

## Brush/Wildland Fires

April 2000

202.11

5 of 9



8. Fuel continuity.
9. Accessibility into fire area.
10. Water resource—tenders, hydrants, etc.
11. Line of retreat. How can I escape?

During interface fires involving brush and structures it may be necessary to retain a structural assignment in staging and be prepared to assign those units to conduct structural firefighting if needed.

These staged resources will be turned out and equipped to carry out interior structural fire fighting.

### MOP-UP COMMAND

When addressing mop up operations, Command should:

- Determine the distance inside the control line to be overhauled (for small fires, this may be the entire burn area).
- During rehab of mop up crews, ensure at least two firefighters remain in the area to monitor for re-ignition or spread of fire.
- Schedule for follow-up checks by crews to ensure the fire is out in mopped up perimeter.

### SUPPRESSION

After primary line work is completed and a fire is called "Under Control," many things remain to be done to make the fire line safe and put the fire out. This work is called mop up. The objective of mop up is to put out all fire embers or sparks to prevent them from crossing the fire line.

A certain amount of mop up work is done along with line building. Mop up becomes an independent part of fire fighting as soon as the spread of the fire is stopped and all line has been completed. Ordinarily, mop up is composed of two actions; putting the fire out, and disposing of fuel either by burning to eliminate it, or removing the fuel so it cannot burn.

# Salt River Fire Department Operating Guidelines

## Brush/Wildland Fires

April 2000

202.11

6 of 9



The principles of mop up follow:

1. Start work on each position of line just as soon as possible after line construction and burning out are completed. Treat most threatening situations first.
2. Allow fuel to burn up if it will do so promptly and safely.
3. On small fires, all fire should be extinguished in the mop up, where quantities of burning material are not so large as to make this obviously impractical.
4. On large fires, completely mop up enough of the area adjacent to the line to be certain no fire can blow, spot, or roll over the fire line under the worst possible conditions.
5. Search for smoldering spot fires.
6. All smoldering material that is not put out with water or dirt should be spread well inside of lines.
7. Eliminate or put into safe condition all fuel of great inflammability, such as rotten logs and snags that are outside but near the control line.
8. Eliminate all burned trees inside of line that could, under most adverse weather conditions, throw sparks over line or fall over the line.
9. Put all rolling material into such a position it cannot possibly roll across the line.
10. Look for indications of hot spots. Some are gnats swarming, white ash, ground which shows pin holes, and wood boring insects. Feel with hands for possible smoldering spots. (Use caution to prevent burning of hands and fingers.)
11. Use water wherever possible and practical in mop up.
12. Use water sparingly, but use enough to do the job. Match the amount of water to the job.

Adding Class-A foam to water will greatly increase effectiveness in mop up of deep-burning fuels.

# Salt River Fire Department Operating Guidelines

## Brush/Wildland Fires

April 2000

202.11

7 of 9



### PERSONNEL SAFETY

In the wildland fire setting a proper brush uniform not only increases fire fighter safety it also is much more comfortable and functional. A proper brush uniform consists of leather ankle high boots. Nylon hiking boots are inappropriate because of the melting and sticking potential of the nylon. Flamex uniform pants and a fatigue shirt will be used in conjunction with a brush jacket. Hats should be worn to prevent heat absorption from the highly vascular scalp area.

Structural firefighting gear is not designed for wildland firefighting and should not be utilized for wildland fires.

Safety equipment should include work gloves and eye protection. Particle masks are recommended and extras should be carried along to replace wet or clogged masks which inhibit air flow and cause CO2 rebreathing.

Remember that heat is a major safety problem and all personnel should be kept well hydrated. All personnel should have access to drinking water and carry canteens or similar water containers.

Sterile water bottles can be cleaned, filled with drinking water, and carried in the brush jacket pockets.

Wildland firefighting is a physically demanding operation and members should be fit and prepared mentally for a very hot, fast moving, and dangerous environment.

### SCENE SAFETY

A. Wildland fires are fast moving and extremely dangerous. These scenes require that all personnel understand these basic wildland fire fighting orders.

1. Size-up! Base all actions on current and expected behavior.
2. Pay attention! Know what the fire is doing at all times.
3. Have escape routes. Captains should identify them and make sure the crew knows about them.
4. Maintain good communications. Between Command, Sectors and Crews.



# Salt River Fire Department Operating Guidelines

## Brush/Wildland Fires

April 2000

202.11

8 of 9



5. Give clear instructions and follow the order model to ensure they are understood.
6. Maintain control of personnel. Captains must account for all crewmembers at all times.
7. Post a lookout (if needed, working uphill, on windy day, etc.)
8. Keep informed on weather, wind direction, forecast, etc.
9. Remember safety first, fight fire aggressively but safely.
10. Be alert, keep calm, think clearly, and act decisively.

### B. CREW SAFETY

Wildland fires demand that Captains maintain a high level of awareness regarding crew accountability. Crew members can easily become spread out and not visible in rugged and rocky terrain. Captains must maintain communication with and control over crewmembers to ensure a safe operation. Wildland firefighting will still employ the buddy system. Watch out for each other.

### C. COMMAND RESPONSIBILITIES

The first arriving company officer that assumes Command must address the life safety, fire control, and loss control benchmarks. In a wildland fire setting the life safety benchmarks must include firefighters as well as civilians. Command must have a plan that includes safety zones for firefighters and equipment. These zones should be established early on to ensure all incoming resources are aware of them. Individual sectors can establish safety zones depending on need or location. Safety zones should be easily accessible and large enough to support rehab sectors and equipment caches. Aerial operations should not be located near safety zones.

- Command should be concerned itself with strategy and allow sectors to decide tactics
- Make early offensive/defensive decisions
- Gather adequate resources



# Salt River Fire Department Operating Guidelines

## Brush/Wildland Fires

April 2000

202.11

9 of 9



- Think ahead - way ahead
- Support sectors
- Protect and rehab firefighters

### AERIAL OPERATIONS

A direct attack on a wildland fire may be carried out by aerial resources. Several public and private helicopter services, fixed wing, and air tankers are available.

Aerial attacks should be considered where ground crews cannot access the fire. NOTE: See Air Operations for more detail. Otherwise a coordinated ground attack should be established to contain and control brush and wildland fires.

Water and slurry when dropped from aerial firefighting units can severely injure ground crews if they are struck by the water. When aerial operations are underway ground crews must maintain constant communication with their Sector Commander to be informed on the location of the water drops. When water drops will expose ground crews they must move 200' off the line, uphill and perpendicular to the fire line.